HEALTH
OF
CHILDREN
OF
SCHOOL
AGE
This report was prepared by Dr. Arthur Lesser, Director, Division of Health Services of the Children's Bureau in the Welfare Administration in cooperation with the staff of the Public Health Service, the Welfare Administration, and the Office of Education, under the general guidance and direction of Dr. Ellen Winston, U.S. Commissioner of Welfare.
HEALTH OF CHILDREN OF SCHOOL AGE
Dear Mr. President:

In his special Youth Message to the Congress of February 14, 1963 President Kennedy stated, "I am therefore asking the Secretary of Health, Education, and Welfare to put a high priority on the Department's studies of school health programs and to make recommendations regarding any action which may be required." The report submitted herewith is in response to that request.

The report of the President's Task Force on Manpower Conservation on January 1, 1964 points out that 15 percent of all males of draft age would be rejected for military service on the basis of medical examinations. Furthermore, about three-fourths of all such persons rejected would probably benefit from treatment. By developing more adequate medical services early in the preschool and school years the incidence of disqualifying conditions would be reduced and these youngsters would be better prepared to assume the responsibilities of adult citizens.

The material in the enclosed report on "Health of Children of School Age" emphasizes the gaps in child health supervision in the preschool years with the resultant wide disparity in the readiness of children to begin their education; the great crowding of well-baby clinics and hospital out-patient departments in the cities; the inadequacies in the quantity and quality of medical care received by children in many low income families; the need for more effective methods of casefinding in the presence of a shortage of physicians; the special problems of adolescents and the handicapped--all pointing to the need for new approaches and for concentrating our community resources where they are most needed.

This report indicates that:

1. The roots of the problems of many of these youngsters are in the early years of childhood in an environment of deprivation--emotionally, intellectually and economically. Assistance must take on a more extensive and imaginative approach than society generally has offered. The resources of the agencies concerned with welfare, health, and
education must be brought to bear in a concerted fashion beginning early in the preschool years.

2. Renewed emphasis should be given to the importance of child health supervision especially in the crowded cities and rural areas where such clinics are inadequate for meeting the need. This will require not only additional financial support but also experimentation in the most effective use of physicians, public health nurses and others.

3. Programs should be developed and supported to test the effectiveness of different methods of identifying children with significant health problems, including health inventories and the use of non-medical personnel for screening.

4. Support should be given to well planned comprehensive projects encompassing several schools in a given area in which various screening methods will be employed to identify children with significant health problems and a clinic made available preferably in a teaching hospital to which children with their parents, can be directly referred for diagnosis, treatment and follow-up.

5. Much greater emphasis should be placed on health programs for youngsters in secondary schools. While such programs cannot consistently overcome the problems resulting from inadequate care in earlier years, the development throughout the country of adolescent clinics which have a relationship to secondary schools for referrals for diagnosis and treatment is a key to improving the health of adolescents. In addition to whatever routine health examinations are provided in the schools, youngsters should receive a careful appraisal when leaving school or when applying for working papers. A stepped up program of support for clinics for adolescents and training in adolescent medicine will be necessary.

6. Studies and demonstrations are needed to test the effectiveness of various methods of reaching and screening preschool children for vision and hearing.

Respectfully yours,

The President
The White House
Washington 25, D. C.

Enclosure
I. THE NATION’S CHILD POPULATION

In 1960, of the Nation’s population of 180 million, almost 40 percent, or 71 million were children and youth under 21 years of age. This represents an increase in the child population of 33 percent since 1950 when there were 53.7 million children.

School age children, 5–17 years, numbered about 44 million in 1960 and may reach 54 million in 1970, an increase of about 24 percent.

Youth in the age range 18–21 years numbered 9.2 million in 1960 and may reach 14.4 million in 1970.

Approximately 2 out of 3 persons (114 million) were living in metropolitan counties¹ in 1960.

16% (28.5 million) of the population lived in contiguous counties.

17% (30.4 million) were living in isolated semirural counties.

4% (6.6 million) were living in rural counties or on farms.

The distribution of the United States population in 1960 is shown in the following table:

<table>
<thead>
<tr>
<th>County group</th>
<th>U.S. population—1960</th>
<th>Per-cent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Millions</td>
<td></td>
</tr>
<tr>
<td>All counties</td>
<td>179.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Metropolitan</td>
<td>113.9</td>
<td>63.5</td>
</tr>
<tr>
<td>Greater</td>
<td>62.1</td>
<td>34.6</td>
</tr>
<tr>
<td>Lesser</td>
<td>51.8</td>
<td>28.9</td>
</tr>
<tr>
<td>Adjacent</td>
<td>28.5</td>
<td>15.9</td>
</tr>
<tr>
<td>Isolated</td>
<td>37.0</td>
<td>20.6</td>
</tr>
<tr>
<td>Semirural</td>
<td>30.4</td>
<td>16.9</td>
</tr>
<tr>
<td>Rural</td>
<td>6.6</td>
<td>3.7</td>
</tr>
</tbody>
</table>

¹ Counties which have cities of 50,000 or more population.

Provided by the Maternal and Child Health Library, Georgetown University
II. CHILDREN IN LOW-INCOME FAMILIES, 1951, 1960, AND 1970

In 1960, 30 percent of children under 18 years of age were in low-income families as compared with 28 percent in 1951. The low-income families referred to here were those with total money income in 1951 at $3,000 or less, and in 1960 at $4,000 or less, both expressed in 1959 dollars.

While national median income in 1959 dollars was rising at the average rate of $150 annually from $4,164 in 1951 to $5,547 in 1960, the concentration of children in low-income families living in urban areas increased from one child in five in 1951 to one in four in 1960. Well over half (56 percent) of children living on farms in 1951 were in low-income families. By 1960 two-thirds of farm children under 18 were in low-income families.

An opposite trend was evident for families living in rural nonfarm areas, much of which comprise small suburban communities and developments, smaller than 2,500 population. Here, the proportion of children in families in the low-income range dropped from 29.1 percent in 1951 to 26.6 percent in 1960.

Were these trends to continue in the years just ahead, nearly a third of children in cities in 1970 will be in families in the low-income bracket (total money income, 18 or more percent below U.S. median, 1970, in 1959 dollars). Four out of five children on farms in 1970 will be in low-income families, if the proportion of farm children population so situated continues to grow as in the decade past.
Tremendous progress has been made in the last 50 years in the health of infants and children. This is represented in a number of ways, such as the decrease in mortality rates, the changes in the leading causes of death and in currently prevalent major causes of illness. This progress has resulted from a number of factors such as the improvement of environmental sanitation (water supply, sewage disposal, milk, housing); the great increase in the public understanding of basic hygiene; the widespread use of immunization agents against communicable diseases; the revolution in therapeutics as represented by the antibiotics and sulfa drugs; the development of new and highly successful methods of diagnosis and medical and surgical treatment; and the great increase in public and voluntary resources for health education, public health and medical care, such as the grant-in-aid programs and hospital and medical insurance.

School age mortality has declined from 150 per 100,000 in 1930 to 45 per 100,000 in 1960. Heart disease in childhood has declined from 10 per 100,000 three decades ago to 0.8 per 100,000 at present. The kinds of diseases that used to fill pediatric services in hospitals such as rheumatic fever and rheumatic heart disease, osteomyelitis, mastoiditis, pneumonia, streptococcal infections, meningitis, polio, and others, have sharply declined. The major group of illnesses to be found in the average large children’s inpatient service today are conditions that are prenatal in origin, a considerable contrast to a generation ago when infectious diseases of various kinds prevailed. This is also reflected in the current leading causes of death in children with accidents, congenital malformations, and cancer among the first five causes.

In view of these revolutionary changes in morbidity and mortality in childhood, new studies of the prevalence of illness become of great importance in planning resources to meet the health needs of children. There are implications in this for the grant-in-aid programs, for research, for the construction of hospitals, for training, and for community organizations.

In the United States, while mortality data have long been available, the collection of data on morbidity has progressed much more slowly. In 1956 the National Health Survey Act was passed, authorizing a continuing survey of the United States to secure information about health conditions in the general population. Of particular interest is the availability on a current, national basis of data on children’s illness, hospitalization, medical and dental care, and related subjects.

A. Acute Conditions Among Children

The outstanding characteristic of acute conditions among children is their high incidence. Injuries present a serious problem but are the cause of only a relatively small proportion of acute conditions.

In the year ending June 1961, which was probably a typical year, the National Health Survey found 169,892,000 acute conditions among children under 15, or a rate of 297.1 per 100 children; that is, 3 episodes of acute illness per year for every child.

The incidence of acute conditions among children is much higher than among adults. Respiratory conditions were by far the largest single group of acute conditions reported. For all children under 15, more than half of all acute conditions, 55.0 percent, fell in the category of respiratory conditions.
The number of acute conditions by age groups during 1 year is represented in the following table:

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Acute Conditions per 100 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>201.9</td>
</tr>
<tr>
<td>0-4</td>
<td>373.4</td>
</tr>
<tr>
<td>5-14</td>
<td>255.6</td>
</tr>
<tr>
<td>15-24</td>
<td>188.6</td>
</tr>
<tr>
<td>25-44</td>
<td>171.6</td>
</tr>
<tr>
<td>45-64</td>
<td>133.9</td>
</tr>
<tr>
<td>65+</td>
<td>119.0</td>
</tr>
</tbody>
</table>

These acute conditions resulted in an average of 4 days per child lost from school during 1 year. Respiratory infections were the chief cause.

B. Chronic Conditions Among Children

In the period July 1959 through June 1961, the National Health Survey found that an annual average of 13,996,000 chronic conditions were reported among children under the age of 17. The 13,996,000 conditions were distributed among 11,116,000 children, so that almost 1 child in every 5 under the age of 17, 18.0 percent of the population in that age group, had at least 1 chronic condition.

The rate of prevalence of hay fever, asthma, and all other allergies per 1,000 children was 74.8 per 1,000, and for sinusitis, bronchitis, and other respiratory diseases 34.2 per 1,000 children under 17. These two groups of conditions accounted for almost half of all the chronic conditions reported for children under 17.

The rate of prevalence of paralysis and orthopedic impairments was 26.3 per 1,000 children, hearing impairments 8.5 per 1,000, speech defects 8.8 per 1,000 and heart disease 4.2 per 1,000.

It was found that of the total number of 13,996,000 chronic conditions reported, only 6 out of 10 conditions, 61.9 percent, had received medical attention within the year preceding the date of the interview; 27.8 percent had not received medical attention for more than a year; and, for 1 out of every 10 conditions, 1,450,000, or 10.4 percent, medical attention had never been sought.

C. Income and Chronic Illness

More chronic conditions were reported for children in higher income families than for those in lower income families. The number of chronic conditions per 1,000 population for children under 17 coming from families with incomes under $4,000 was 207.2; for children coming from families with incomes of $4,000-$6,999, the rate was 222.6 per 1,000 population, and for children from families with incomes $7,000 and over, the rate was 261.4 per 1,000.

The reports of more chronic illness among higher income families is probably the result of more frequent physician visits, greater financial access to medical care and more attention to medical problems by the parents. It is further influenced by the fact that one-half of the chronic conditions are allergies and chronic respiratory disease, principally sinusitis. Allergies characteristically receive much more attention in higher than in lower income families and are therefore identified as being much more prevalent. The data from the National Health Survey show that the prevalence rate was 21/2 times as high in the $7,000+ group than in the less than $2,000 group. It is doubtful that these prevalence differences in income levels would be borne out by clinical examinations. Similarly the Survey finds less chronic illness among children living on rural farms than in urban areas.

On the other hand, the serious and obviously visible problems are more prevalent among the lower income groups. Thus, paralysis and orthopedic impairments accounted for 13.8 percent of chronic conditions reported for the lowest income group, and only 9.7 percent of the conditions reported for the top income group. Similarly, blindness and visual impairments, hearing impairments, and speech defects together accounted for 12.4 percent of the chronic conditions reported for the under $2,000 group, contrasted with 6.4 percent for those in the $7,000 and over group.
D. Hospitalization for Children

The study by the American Academy of Pediatrics on Child Health Services found that for the year 1946, the number of child admissions to general hospitals (including children's hospitals) was 51.4 per 1,000 children during 1 year.

The National Health Survey reports for the period July 1958 through June 1960 an average annual rate for children under 15 of 62.9 discharges per 1,000 children. The average length of hospital stay for all children under 15 discharged from short-stay hospitals was 6.0 days.

Somewhat over half of the children under 15 who went to the hospital were treated surgically for the condition for which they were hospitalized; of the total number of discharges, 52.5 percent had been treated surgically.

An estimated 1,875,000 surgical operations per year were performed on the children under 15. An analysis of the types of operations indicates that nearly half, 45.4 percent, of all the operations were tonsillectomies, a total of 851,000 operations.

A large volume of the hospital care provided for children was paid for by hospital insurance. However, more of the hospital bills for children in the age group 5–14 years were paid for by a hospital insurance plan than were the bills of children under 5 years of age. Some fraction of the bill was paid for by insurance for 72.1 percent of the hospital discharges of all children under 15.

E. Significant Medical Problems of Childhood

The National Health Survey, like other studies of illness prevalence, shows that children have a large burden of illness and that by the time they enter school they have already lived through several episodes of acute illness. Also, they have begun to accumulate chronic diseases, which will increase as they get older.

### Congenital malformations

Morbidity surveys, such as the National Health Survey, because of the size of the sample of the population studied, are less helpful in providing data about specific medical problems. The large group of congenital malformations not delineated in the National Health Survey now constitute a public health problem of rapidly growing significance. With the decrease in infant mortality, the proportion of infant deaths due to congenital malformations has increased so that at present they cause 14 percent of all infant deaths. Among live born infants weighing more than 5.5 pounds, the leading cause of death in the first month of life is congenital malformations.

The incidence of congenital malformations is difficult to determine. The best study, that of Rustin McIntosh, reported an incidence of 7 percent in a group of 6,000 infants who were followed until 1 year of age. Only one-half of these had been discovered at birth. Children with congenital malformations are now surviving to a much greater extent than formerly and therefore this group of conditions is increasing as a major problem of childhood. About 30 percent of the caseload in the crippled children’s program consists of congenital malformations and much of this is congenital heart disease.

With the decline in rheumatic fever, congenital heart disease has become the principal cause of childhood heart disease. From a number of studies, it is estimated that about 25,000 babies are born each year with this condition, of whom probably three-fourths can be successfully treated by surgery. The example of congenital heart disease illustrates why studies which are focused on specific conditions are needed to supply essential data which cannot be obtained from the population surveys such as the National Health Survey.

### Prevalence of handicapping conditions

How many children with handicapping conditions are there in the United States? How many with particular kinds of handicaps? Precise answers are not available; nevertheless, there are national estimates which are of sufficient accuracy to be useful for program purposes. The numbers of children in 1960 and the projected numbers in 1970 are shown in the following table:
Epilepsy (under 21) ............................. 360,000 1960
Cerebral palsy (under 21) .......................... 370,000 1970
Mentally retarded (under 21) .......................... 2,180,000
Eye conditions needing specialist care including refractive errors (5-17) .......................... 10,200,000
Hearing loss (under 21) ............................. 360,000-725,000 1960
Speech (5-20) ........................................ 2,580,000 1970
Cleft palate-cleft lip ...................................... 95,000
Orthopedic (under 21) ................................. 1,925,000
Congenital heart disease ................................... About 25,000 born each year, of whom 7,000 die in the first year
Emotionally disturbed (5-17) .......................... 4,000,000

These figures are indicative of the large number of children in our population who have handicapping conditions. By education standards, it is usually estimated that about 12 percent of children of school age are in need of special education because of handicapping conditions.

Vision impairment

Included (and frequently overlooked) among the large group of children who have varying degrees of vision impairment is the condition known as amblyopia ex anopsia. Visual acuity develops during the early years of life, approaching the adult level by the age of 7 years. The failure of the eye to develop visual acuity resulting in blindness or dimness of vision usually occurs as a consequence of the failure to treat strabismus (a crossed eye) or a refractive error in one eye giving a distorted picture which cannot be reconciled with the normal eye, so that the defective eye is used less and less.

The significance of this condition lies in its prevalence and in the fact that blindness in the affected eye can usually be prevented by early treatment. Various studies have reported that about 2 percent of young men examined for military service had amblyopia with 20/70 vision or less in one eye. It is reported that over 1 million people are blind in one eye as a result of this condition. One ophthalmologist ranks amblyopia second to none as a preventable cause of blindness.

Prevention is based upon testing the visual acuity of all children at 3 years of age and instituting the treatment which is indicated.

Hearing impairment

School health studies have indicated that about 7 percent of children already have hearing loss when they enter school, that during the elementary years the rate may rise to about 9 percent by the fifth grade, and in secondary school the rate will have risen to 12 percent.

A statistical summary of the hearing conservation program in Michigan over a period from 1943-61 presents the results of the case-finding program for a total population of 3,217,467 pupils. The number of children with measurable hearing loss was 3.11 percent of this total. The total referred to clinics for otological examination was 1.73 percent. The report notes that there has been a steady decrease in the prevalence of hearing loss in those counties where a testing program is carried on. The report points out that in States where the program is still new, the prevalence is 4 percent, and suggests that the hearing conservation program has played an important part in the reduction of correctable losses.

According to the annual report of the medical director of the Chicago Public Schools, 1962, the prevalence of hearing loss is 8.3 percent of a total of 111,696 pupils tested by audiometric means. The March 1963 report of a Study of Hearing Sensitivity and Related Factors con-
ducted by the University of Pittsburgh School of Public Health indicates that "of the 4,678 children in the study population, 622 (15.2 percent) were classified as otoscopically abnormal, that is, had abnormal findings in one or both ears."

A limited number of reports are available about the prevalence of hearing impairment at the preschool age level. A Minneapolis survey showed that about 4 percent of the preschool children failed to respond satisfactorily on a test of hearing functions. Approximately this rate was found, too, in the Michigan pilot program and the Oregon program for testing the hearing of preschool children. There is little question in the minds of experts that the case-finding and treatment program must be extended to the preschool age. The problem has been to organize and implement such a program for earlier casefinding.

Estimates have been made by otologists that 50 percent of the hearing problems result from pathological conditions which will respond to medical care. Failure to detect these conditions and to provide for medical care can result in irreversible destruction of parts of the hearing mechanism.

Venereal disease

According to the American Social Health Association, "There can no longer be any question that infectious syphilis and gonorrhea now represent the largest and most serious communicable disease problem in the United States."

For the fifth consecutive year the trend line of infectious syphilis reported in the United States continues upward and 106 cities of over 100,000 population, comprising 31 percent of the population of the United States, reported 53.3 percent of all primary and secondary syphilis in the United States, indicating that incidence in large urban areas far exceeds that of smaller non-urban areas.

The 48 cities which reported complete data on the 3 age groups for all 3 years showed increases each year in all groups with the exception of syphilis for the 10–14 group, and gonorrhea for the 15–19 group, from 1961 to 1962. These figures are consistent with the statistics showing higher incidence for younger age groups in large urban areas. The decline in reported gonorrhea is suspected to be due only to a de-emphasis of casefinding activities in favor of concentration on infectious syphilis.2

The case rate varied in various cities and States but the greatest concern is felt about the increasing incidence in younger age groups under 20. The rise in incidence in primary and secondary syphilis for 1960 and 1961 was much sharper for those under 20 than for all age groups combined.

The Communicable Disease Center of the Public Health Service reports that between 1956 and 1961, venereal disease in American adolescents age 15–19 increased 132 percent.

Details for fiscal year 1962 show age breakdown of this rise to be:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>7%</td>
</tr>
<tr>
<td>10–14 year group</td>
<td>6.2%</td>
</tr>
<tr>
<td>15–19 year group</td>
<td>10%</td>
</tr>
<tr>
<td>20–24 year group</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

The teenage and young adult group contribute in an especially high degree to the gonorrhea infection rate. The 1961 gonorrhea infection rate per 100,000 population for all ages was 142.8; however, the "teen" rate (15–19) was 277.3, and the young adult rate (20–24) was 715.8.

In Deschin's study of 600 teenagers between 12 and 19 years of age, treated for venereal disease in New York City, only 10 percent had a knowledge of what venereal disease was or how it was contracted, and only 42 percent had ever read anything about the subject. Of the teenage group, only 15 percent graduated from high school. The majority were dropouts and were not working.

1 Today's VD Control Problem. Joint statement by Association of State and Territorial Health Officers; American Venereal Disease Association; and American Social Health Association, March 1963.
Dental caries

Most individuals have dental caries; probably less than 5 percent of the population escapes them. The average number of carious teeth per child in one major study was 0.36 at age 5, 4.77 at age 10, and 10.65 at age 15.

Despite the increase in fluoridation of the water supply the number of untreated dental cavities increases each year. Present methods employed in the United States cannot solve this problem. In addition to further extension of water fluoridation, we must be willing to train and employ large numbers of dental assistants who are trained to fill teeth under supervision as has been successfully done in New Zealand for over a decade.

Emotionally disturbed children

Emotional problems have become the most serious and difficult problems of children of school age. Studies of prevalence vary but typical figures are the following:

19% of children in the 1st to 11th grades were considered to be "maladjusted."

8% of 9th grade children had serious adjustment problems.

In another study, of the 19% of the children who were considered maladjusted, 2% were severely so.

In New York City, the health department estimates that about 20% of all children of school age are in need of child guidance services and that many such children could be identified, if not prior to school, on the first routine health appraisal on admission to school.

A number of references use a figure of about 10% of school children who have serious emotional problems.

Tuberculosis

Tuberculosis in school children does not present the serious problem it formerly did. In 7 school districts, 72,856 randomly selected students were skin tested. There were 4,855 positive reactors (indicating a history of exposure) and 7 active cases of tuberculosis discovered. Many of the positive reactors were already known to the schools and health departments.

In Philadelphia and Los Angeles schools located in known high tuberculosis areas, 90,666 students were tested and 445 cases of active tuberculosis discovered, a rate of 0.5 percent.

In Kansas, over 9,000 randomly selected students were tested. There were 169 positive reactors, but none had active tuberculosis. However, these positive reactors had 700 contacts of whom 2 had tuberculosis.

Tuberculin testing is still an essential screening test in health supervision, especially important in low-income districts.

F. Data From Examination of Selective Service Registrants

The reasons for draft rejections contribute to our knowledge of the health of our youth, although unfitness for military service does not necessarily mean any hindrance to normal civilian life.

Studies of registrants by Karpinos reveal that 23.6 percent of those examined were disqualified and that the reasons for disqualification were:

Administrative reasons

Mental test failure, only

Mental test failure and medical reasons

Medical reasons, only

The term "administrative rejection" applies to "moral standards" and includes those with criminal records, alcoholism, drug addiction, adverse character traits, and previous army discharge for moral reasons. The mental test covers vocabulary, arithmetic, and spatial relations. Medical standards included physical

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3 The Report of the President’s Task Force on Manpower Conservation indicates that 15 percent were disqualified for medical reasons on examinations between August 1958 and June 1960 and the overall rejection rate was 31.7 percent.
DISTRIBUTION OF MEDICALLY DISQUALIFIED YOUTHS BY DISQUALIFYING DIAGNOSTIC CATEGORY AND PREVALENCE OF DISQUALIFYING DEFECTS

(August 1953 through July 1958)

<table>
<thead>
<tr>
<th>Diagnostic category</th>
<th>Number per 10,000 medically disqualified youths</th>
<th>Distribution by diagnostic category</th>
<th>Prevalence of disqualifying defects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>10,000</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Bones and organs of movement diseases and defects</td>
<td>1,571</td>
<td>1,745</td>
<td></td>
</tr>
<tr>
<td>Psychiatric disorders</td>
<td>1,223</td>
<td>1,448</td>
<td></td>
</tr>
<tr>
<td>Circulatory system diseases</td>
<td>1,008</td>
<td>1,314</td>
<td></td>
</tr>
<tr>
<td>Eye diseases and defects</td>
<td>974</td>
<td>1,260</td>
<td></td>
</tr>
<tr>
<td>Failure to meet the anthropometric standards</td>
<td>650</td>
<td>789</td>
<td></td>
</tr>
<tr>
<td>Ear and mastoid process diseases and defects</td>
<td>628</td>
<td>689</td>
<td></td>
</tr>
<tr>
<td>Digestive system diseases</td>
<td>581</td>
<td>630</td>
<td></td>
</tr>
<tr>
<td>Allergic disorders</td>
<td>557</td>
<td>588</td>
<td></td>
</tr>
<tr>
<td>Infective and parasitic diseases</td>
<td>467</td>
<td>488</td>
<td></td>
</tr>
<tr>
<td>Neurological diseases</td>
<td>454</td>
<td>488</td>
<td></td>
</tr>
<tr>
<td>Congenital malformations</td>
<td>376</td>
<td>423</td>
<td></td>
</tr>
<tr>
<td>Endocrine system diseases</td>
<td>223</td>
<td>239</td>
<td></td>
</tr>
<tr>
<td>Neoplastic diseases</td>
<td>199</td>
<td>219</td>
<td></td>
</tr>
<tr>
<td>Skin and cellular tissue diseases</td>
<td>175</td>
<td>201</td>
<td></td>
</tr>
<tr>
<td>Genitourinary system and breast diseases</td>
<td>139</td>
<td>163</td>
<td></td>
</tr>
<tr>
<td>Respiratory system diseases (nontuberculous)</td>
<td>118</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>Blood and blood-forming organ diseases</td>
<td>26</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Metabolic diseases and avitaminoses</td>
<td>19</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous disease and defects</td>
<td>612</td>
<td>717</td>
<td></td>
</tr>
</tbody>
</table>

Additional breakdowns of diagnoses give some indication of preventable or treatable conditions such as strabismus, unilateral blindness, hernias, otitis media, and defective hearing. Of interest also in Karpinos' tables is the low incidence of rheumatic fever and of venereal diseases. Other conditions are decreasing such as late effects of polio, chronic rheumatic heart disease, and osteomyelitis. A large number of registrants were rejected with diagnoses of conditions which, with present knowledge, could not be prevented. These include cerebral palsy, epilepsy, diabetes, and other endocrine disorders, certain orthopedic disorders, congenital malformations, failure to meet anthropometric standards, and others. The many psychiatric disorders probably constitute the major challenge to medical science of our time so far as youth is concerned.

G. Causes of School Absences

The usual length of the school year in the United States is 180 days. In the year ending June 1961, the days lost from school totaled 156,914,000, which represented 407.8 days per 100 children aged 6-16, or 4 days per child.3

Austin E. Hill, M.D., Director of Health, Houston Public Schools, has analyzed major causes of absenteeism, and says:

2 The diagnostic categories (except "Miscellaneous disease and defects") have been arranged in descending order of the disqualification rates. The diagnostic classification is in accordance with Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, 1955 Edition.

Provided by the Maternal and Child Health Library, Georgetown University
... someone is absent from every school every day. Under the most favorable conditions, there will be between 4 and 5 percent of the total enrollment absent each day, but the average for the entire year usually exceeds 7 percent. At times, under certain circumstances, absence is as great as 15 to 25 percent of the total enrollments. During an epidemic, such as measles, daily absenteeism in classrooms of kindergarten, first, and second grades may reach 50 to 75 percent.

In Dr. Hill’s study a wide variety of medical reasons other than communicable diseases were found to constitute the next most important causes of absenteeism. These included “accidents, surgical operations, medical and dental appointments, allergies, asthma, sinusitis, ‘school phobia’, truancy, and other emotional situations.”

Nonmedical reasons for absence made up another 10–15 percent and this group were improved by conferences between parents and the school. Dr. Hill observed, “Poor home conditions are not conducive to good school attendance.”

Edwin D. Martin, Ph. D., Assistant Superintendent in Charge of Secondary Education, Houston Public Schools, found:

... a significant difference in junior high students’ attendance according to grade level and sex. There was no single reason given for these absences, but those with higher ability maintained a better attendance record. Boys were absent more often than girls, and students whose parents did not go beyond the eighth grade were absent more often than those whose parents had a higher education.

The Metropolitan Life Insurance Co. in their booklet Absent from School Today shows figures indicating the causes of children’s diseases as follows:

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory diseases</td>
<td>46</td>
</tr>
<tr>
<td>Other communicable diseases</td>
<td>13</td>
</tr>
<tr>
<td>Digestive disturbances</td>
<td>6</td>
</tr>
<tr>
<td>Skin conditions</td>
<td>5</td>
</tr>
<tr>
<td>Injuries</td>
<td>3</td>
</tr>
<tr>
<td>Other medical causes</td>
<td>14</td>
</tr>
<tr>
<td>Nonmedical causes</td>
<td>13</td>
</tr>
</tbody>
</table>
IV. SCHOOL HEALTH SERVICES

Over the years, the public schools and the health departments have done much to upgrade the health of the Nation by providing health services, a healthful school environment, and health education which has emphasized good health practices both in and out of school. To discover this, one needs only to examine health records to become familiar with the school's role in the control of disease, the improvement of nutrition and environmental sanitation, and to examine curriculum guides, textbooks, and research materials which teachers have used. To be sure, with local control of schools, variations are to be expected. As in all facets of American life some communities have accomplished more than others.

While it is true that previously in all too many instances, emphasis in school health services was placed on a limited annual physical examination, in recent years there has been a shift in emphasis: (1) through home-school cooperation parents are taking responsibility for having the family physician examine children and provide guidance for follow-up and, (2) school-provided examinations are periodic in nature and more thorough. Stress is placed upon parental responsibility for follow-up. Because of close school-home-community cooperation, greater attention is being given to preventive measures, provided according to plans developed locally. It can truly be said that concern is for the child and helping him attain a high level of personal health.

It must be recognized that conditions exist in some communities, especially urban, but also in rural, which deprive some children of health services, namely, the economically disadvantaged, those who come from homes of indifferent parents, those who have no family physician.

With the increasing number of children, with high mobility a prominent factor in our Nation, with the constant stream of the economically disadvantaged to urban areas, and with the close living conditions characteristic of these areas, more than ordinary steps need to be taken to assure children and youth services they need and indeed must have if they are to enjoy good health and a good life.

School health services constitute a major component of community health services. In many communities, the money expended, personnel involved and services rendered far exceed that of other official and voluntary agencies combined. It has been estimated that over $100 million is expended each year in school health services, most of it local funds, and nearly 20,000 professional health persons are involved either on a full-time or part-time basis.

In a review of printed materials being carried out by the Public Health Service, still in process, the school health programs in 70 public school systems in 36 States and the District of Columbia are being analyzed. Nearly 7 million children are represented in these school systems. The administrative responsibility for these programs is as follows:

<table>
<thead>
<tr>
<th>Board of education</th>
<th>43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health department</td>
<td>9</td>
</tr>
<tr>
<td>Joint health department-board of education</td>
<td>18</td>
</tr>
</tbody>
</table>

The expenditures per pupil for the school health programs are recorded in the following table:
### SCHOOL DISTRICT EXPENDITURES

<table>
<thead>
<tr>
<th>Cost per Pupil</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $1.00</td>
<td></td>
</tr>
<tr>
<td>$1.01-$2.00</td>
<td></td>
</tr>
<tr>
<td>$2.01-$3.00</td>
<td></td>
</tr>
<tr>
<td>$3.01-$6.00</td>
<td></td>
</tr>
<tr>
<td>$6.01-$9.00</td>
<td></td>
</tr>
<tr>
<td>$9.01-$12</td>
<td></td>
</tr>
<tr>
<td>Over $12</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(6)</th>
<th>(11)</th>
<th>(17)</th>
<th>(15)</th>
<th>(11)</th>
<th>(7)</th>
<th>(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dade County</td>
<td>0.37</td>
<td>Savannah</td>
<td>1.07</td>
<td>Little Rock</td>
<td>2.66</td>
<td>New Haven</td>
</tr>
<tr>
<td>Duval County</td>
<td>.19</td>
<td>Columbus, Ga</td>
<td>2.00</td>
<td>Boise</td>
<td>2.75</td>
<td>Chicago</td>
</tr>
<tr>
<td>Pinnellis</td>
<td>.39</td>
<td>Council Bluffs</td>
<td>1.07</td>
<td>Topeka</td>
<td>2.16</td>
<td>Peoria</td>
</tr>
<tr>
<td>Atlanta</td>
<td>.47</td>
<td>Fargo</td>
<td>2.00</td>
<td>Wichita</td>
<td>2.83</td>
<td>Baltimore</td>
</tr>
<tr>
<td>Detroit</td>
<td>.24</td>
<td>Cincinnati</td>
<td>2.00</td>
<td>New Orleans</td>
<td>2.11</td>
<td>County</td>
</tr>
<tr>
<td>Columbus</td>
<td>.24</td>
<td>Columbus</td>
<td>2.00</td>
<td>Anne Arundel</td>
<td>2.97</td>
<td>Minneapolis</td>
</tr>
<tr>
<td>S.C.</td>
<td>.34</td>
<td>Ohio</td>
<td>2.00</td>
<td>Prince Georges</td>
<td>2.35</td>
<td>Kansas City</td>
</tr>
<tr>
<td>Toledo</td>
<td>1.35</td>
<td>Ardmore</td>
<td>1.10</td>
<td>Charlotte, N.C</td>
<td>2.75</td>
<td>Lincoln, Nebr</td>
</tr>
<tr>
<td>Memphis</td>
<td>1.48</td>
<td>San Antonio</td>
<td>1.50</td>
<td>Winston-Salem</td>
<td>2.27</td>
<td>Manchester</td>
</tr>
<tr>
<td>Kanawha</td>
<td>1.66</td>
<td>Kanawha County</td>
<td>(Charlestown, W. Va.)</td>
<td>Dayton</td>
<td>2.12</td>
<td>Cleveland</td>
</tr>
<tr>
<td>Norfolk</td>
<td>2.73</td>
<td>Austin, Tex</td>
<td>2.86</td>
<td>Oklahoma City</td>
<td>2.50</td>
<td>Eugene</td>
</tr>
<tr>
<td>Salt Lake City</td>
<td>2.54</td>
<td>Nashville</td>
<td>2.77</td>
<td>Pittsburgh</td>
<td>4.82</td>
<td></td>
</tr>
<tr>
<td>Seattle</td>
<td>2.87</td>
<td>Houston</td>
<td>4.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richmond</td>
<td>3.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tacoma</td>
<td>3.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Figures from 2 districts not available.
The partnership of education and medicine that is essential for a school health program has been expressed in many ways but hardly more simply and directly than in the following two statements of the components of the program.

Healthful school living includes:

1. A healthful environment
2. Health services
3. Education of the handicapped
4. Health instruction

The second statement is from *School Health Services*, a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association which lists these components:

1. To appraise the health status of pupils and school personnel
2. To counsel pupils, parents and others concerning appraisal findings
3. To encourage the correction of remediable defects
4. To assist in the identification and education of handicapped children
5. To help prevent and control disease
6. To provide emergency service for injury or sudden sickness

Each of these is a broad subject, which may have varying interpretation as well as applicability. Their applicability is affected by the kinds of health problems that are predominant today. These are different from those of a generation ago and vary among our communities and even in neighborhoods in a city. How to carry out these program components and what meaning they have for school health personnel will differ widely.

However, differences in communities and in health problems are not the only factors which determine the content of a community's school health program. Often school health programs continue practices which were appropriate several decades ago but are hardly effective today and which fail to meet the major challenges of the present generation.

When school medical services started in this country (and the first such service is reported to have begun in Boston in 1894), the control of the spread of contagious and nuisance diseases was the principal objective. This led to medical inspections of children in school. Subsequently there developed a major emphasis on examinations for the discovery of physical defects and procedures designed to show parents the need for having these defects corrected. This continues to be the major emphasis in school health services. Such examinations are considered of importance not only for casefinding purposes but also for their usefulness in teaching children basic facts about health and helping them to develop good health habits. In fact for many schools, the importance of health education is considered the principal reason for having school health services.

Probably the most extensive evaluation of a school health program is the study done in New York City in 1942, well known as the *Astoria Study*. It not only pointed out that there was much wasteful repetitive work going on, which year after year resulted in the recording of more defects often involving the same children, without adequate follow-up activity, but it also showed the way to a more effective program. The conclusions and recommendations of this study have been widely influential. They have a particular significance for our subject of teamwork in that the study demonstrated the effectiveness of the teacher in casefinding and the importance of her relationships with the nurse and physician as a member of the school health team.

While not all of the findings of the *Astoria Study* have equal applicability in all our communities, there are several basic questions which do. These include:

1. What are the major health problems of children in our community?
2. What priorities should be established in providing health services?
3. What are our community health resources and how effectively do we use them?
4. What is the most productive use of the time of the school doctor, nurse, and teacher?

5. For which children should the school provide physical examinations?

6. How can the effectiveness of follow-up services be increased?

7. What is the relationship of the school guidance program to the school health program?

Many people feel that most school health programs are badly in need of revision with respect to their content, procedures, and objectives. Large sums of money are spent in these services and with varying effectiveness. Not enough recognition has been given to the changes in our health problems which means that communicable diseases and other acute conditions are now less important and that more understanding and attention must be given to the problems accompanying growth and development, adolescence, and handicapping conditions of childhood. Closely allied to this, are the functions of the school health team, and the most effective use of their time.

A brief recapitulation of the history of school physical examinations will illustrate how concepts of school health services have changed, as well as some different points of view regarding them. Twenty-five years ago annual medical inspections of all school children were customary. Subsequently, as education became effective in increasing the public understanding of the importance of controlling communicable and nuisance diseases, of securing medical care early and seeking health supervision for children, the value of medical inspections diminished sharply. Some form of frequent though necessarily brief, health examination was still considered important in many places, however, and has not yet been given up. As recently as 1945 a law was passed in Pennsylvania which provides for statewide, biennial medical and dental examination of all pupils in public and private schools. Examinations of such frequency and such large numbers cannot be done adequately, are wastefully repetitive, and may give many parents as well as school administra-

tors a false sense of security about the health of the children.

The present status of many school health programs and the large sums expended upon them constitute a major challenge to the medical and education professions. In essence, this challenge is to make the school health programs more effective, and more responsive to present day problems. This means breaking with tradition and entrenched concepts. What are the problems that make up this challenge?

A. Health Supervision in the Preschool Years

In addition to its intrinsic value, health supervision in this period is important also because many childhood disabling illnesses both physical and emotional have their origin in infancy or the preschool years. Health services for children of school age are a part of a continuum of child health supervision beginning in infancy and extending through adolescence. Effective health supervision for children during the years before entering school would help considerably to get them ready for school and reduce the extent of the need for school health services for children in the first year of school. Yet, of the children reported by State health departments as receiving services in child health conferences, 42 percent are infants, although infants comprise only one-sixth of the population served.

The question is asked in the report of the 1957 California Conference on Child Health Supervision, referring to a study done in that State, “What should we be doing about the 20 percent of infants whose health supervision is one visit or none, and the 36 percent of preschool children who receive no medical health supervision?”

The problem of the large proportion of children who are not immunized has been given a new and special emphasis by the low proportion of children in some segments of the population who are protected against poliomyelitis. Polio immunization surveys bring out repeatedly that the level of protection is lowest in children living in the lowest income families.
Immunizations also reflect the inadequacy of preschool child health supervision. The California study brings out that 40 percent of the children under 6 years have not been vaccinated against smallpox. Sixty-nine percent of 1-year olds had their DPT injections but few obtained their boosters in the preschool years, so that only 32 percent of the children were considered adequately immunized against diphtheria, pertussis, and tetanus. A study of a low-income township in Ohio brought out that 68 percent of children aged 1-4 were not immunized against DPT. Problems of transportation seem to contribute to this as much as finances or more so.

One school health administrator says:

There is a law in Illinois stating that children shall be examined in kindergarten or first grade and again in the 5th and 9th grades. However, nobody, I am sure, would want to put the cart before the horse. A school physical examination law without a strong preschool program is unwise and nonproductive. The community should present to the school a child already examined, already inoculated and if a defect is found, already embarked on a correction if it can be corrected. This is the basis on which school programs should be built.¹

In the provision of health services in the preschool years, the community’s health resources are particularly important, since if the school health program is being called upon to make up for a large proportion of the community’s deficiencies in providing an adequate health program for its children, it will surely fail. Consider the problem recently faced by the newly appointed director of school health in a large midwestern city. The only personal health services that have been provided by the school program are immunizations and speech and hearing tests. Should periodic health examinations be provided also? The magnitude of such an undertaking is staggering, not only because of the numbers of children involved, but because many thousands of them have had no health supervision since infancy. The city health department’s child health conferences accept children only under 2 years of age. None of the many hospital out-patient clinics in this city will accept a child for a health examination. These clinics are conducted primarily for children with illnesses. Where does a school system begin when the rest of the community is not doing its part?

Many services and many people would be involved in helping children to be better prepared for school entry. Many school health workers feel that screening procedures should start in the preschool period in order that damaging conditions could be brought under control while still amenable to treatment.

There is particular concern about sight and hearing. Concern is based on both educational and health reasons. The educational reasons are that these two senses need to be functioning at optimum level if the child is to make full and comfortable use of his educational opportunities. The medical reasons are that the most frequent sight and hearing problems of childhood have their onset in the first years of life, are most susceptible to treatment then, tend to get worse and more difficult to correct as time goes on, and linger on through childhood as permanent defects carried from then on through adult life.

If we are to be concerned with prevention, we must test children’s vision before they enter kindergarten. In the city of Detroit alone, well over a thousand children each year enter the ranks of the one-eye blind for lack of detection and treatment in the preschool years. They are victims of amblyopia ex anopsia, commonly referred to as the “lazy eye.” Others have a crossed eye which they were “supposed to” have outgrown, but did not. Their parents, in some cases, were victims of misinformation. In Franklin School, 96 children could pass the Snellen E. Test with one eye only—an average of 2 in every classroom. No doubt many of these have joined the unenviable ranks of the one-eyed although most of this could have been prevented through early detection and care.²


Provided by the Maternal and Child Health Library, Georgetown University
New York City has found:

A careful review of health conditions found on admission to school reveals significant adverse health conditions which pre-existed since early childhood. Nearly 7 percent manifested a disturbance of vision. Only visual defects at 20/50 vision or worse in either eye, whether corrected or not, were included in this category. Fourteen percent had disorders relating to nutrition. Over 4 percent had emotional problems which affected their school adjustment. Nearly 4 percent had conditions affecting the ear and about 1.5 percent of these were diagnosed as deafness. Orthopedic conditions were found in 10 percent of all examined.

It is regretted that these conditions were not discovered prior to entrance to school during the preschool period.10

Some places have entered into preschool screening. The Denver Public Schools report:

Last year, 1,734 preschool children in 79 different groups were screened and 66, or 3.9%, failed the screening test and were referred for rechecks.11

Needless to say, it is imperative that whenever screening is done, there must be accompanying arrangements for subsequent diagnostic examination and needed medical care if the screening is to yield desired defect-correction.

Examinations of children in the first grade bring out repeatedly that little of significance is discovered which was not previously known when the children have received health examinations in the preschool years. This is directly related to income class.

B. Periodic Health Examinations for School Children

The Academy of Pediatrics Committee on School Health recommends that a child should have an examination on school admission and then at 3- or 4-year intervals. The National Education and the American Medical Associations Committee on Health Problems in Education recommend a minimum of four medical examinations during the school career. These, of course, are not related to special indications for examinations which may come up from time to time. Since there is general agreement about these examinations, what is the basis of the confusion which is frequently expressed about their value? It is possible that the confusion is derived in part from the expressed purposes of the examination and in part from the problem of adapting a general principle to a particular situation.

Usually three purposes are given for periodic examinations of school children. One purpose is that the examination provides an opportunity for health education for the child and, hopefully, his parents. Many school people consider this the principal basis for having the examinations. Another purpose is the chance it gives to find significant health problems. The third is that periodic health examinations are an essential component of preventive medicine for individuals. Some of the dissatisfaction that is expressed with these periodic school health examinations stems from confusion of their purpose or a lack of delineation of purpose. If they do have value as a method of education, then it should make little difference whether or not much pathology is found. If there is value in the basic concept of periodic health examinations for health supervision, the frequency with which defects are found should be no more important than it is in health supervision of infants and preschool children. If the purpose is to find defects in health, then the frequency of such casefinding is definitely related. It is probably true that regardless of how much we may talk about the purposes of the health examination among supposedly normal children, such examinations are always carried out as though the main reason was to find pathology. This is the way physicians are taught to do examinations. The concept of health supervision has not made much headway beyond the early years of childhood.

An interesting presentation of this subject from the point of view of adult medicine appears in "The Values and Limitations of Pe-
periodic health examinations" in the February 1959 issue of the Journal of Chronic Diseases. The problems parallel those encountered in working with children. Although an advocate of periodic health examinations, the author considers their value chiefly as potential rather than presently realized. He points out that their limitations include the lack of conviction of their worth by the medical profession and the public and that it is by no means demonstrated that they are the "keystone of preventive medicine." In fact, the author continues, many other public health services contribute more consistently to improving and maintaining good health.

This means that periodic health examinations have a relative and varying value which differs among communities. If their educational aim has demonstrated its usefulness, they certainly should be continued in a given school. On the other hand, if providing these examinations is no more than going through certain motions, a paying of lip service to a generally accepted principle that health examinations are important, then a reevaluation is in order. It has been demonstrated by Yankauer and others that as a means of finding hitherto unknown defects, the entrance examination may be a waste of time in some communities because of adequate preschool health supervision. The decision as to the frequency and scope of periodic examinations involves consideration of their purpose, and of their value in relation to their purpose. Further, it involves the ability of the community to carry out such examinations effectively. Alternatives to periodic health examinations for the purpose of finding significant health problems should also be considered. Such alternatives exist and they need further study.

C. Finding Children in Need of Medical Attention

Assuming that finding the children with deficiencies in their health will continue to constitute a fundamental part of health services for school children, how can this be done more efficiently? We need research in improved methods of screening groups of children. It has been adequately demonstrated to most people's satisfaction that the teacher herself has the major opportunities for observing deviations from expected, normal health among the children, seeing them as she does every day and getting to know them. Together with the school nurse, she is in an excellent position to select some of the children in need of medical attention. But these observations need to be supplemented by specific screening examinations. Of these, audiometer and vision tests are most widely used. Defective hearing and vision are among the most common disabilities of childhood and affect the health and education of millions of children. The teacher is also in a strategic position to stress to children and their parents the importance of dental hygiene which can be achieved only by periodic visits to the dentist. The value of inspecting the teeth for the omnipresent dental caries would seem to lie in health education rather than as a screening test.

There has been insufficient testing of a well-constructed pupil's health history as a screening method. Such a history was first developed at the New York Hospital, to be filled out by patients in the outpatient department. In the previously cited paper 13 in the Journal of Chronic Diseases, the author finds that a "very thorough health questionnaire" contributes greatly to the examination. He states that "My associates and I, who prided ourselves on our ability to take good and complete medical histories, find that in up to 15 percent of the patients we see, the complete health questionnaire which we use at present elicits potentially significant health history information we doubt we would have elicited by the interview techniques we had been using." In a review of the Pennsylvania school health program a few years ago, the Medical Advisory Panel stated that "a medical history can be devised that will be useful in detecting a number of ailments, including allergies, epilepsy, diabetes, infected tonsils, rheumatic fever, mental illness, and orthopedic defects." We have not had adequate trials of the health questionnaire in children's health services.

In a study of health services in four schools currently being done by the University of Pittsburgh School of Public Health, the use of a Health Inventory was analyzed. Among 101 seventh-grade students filling out the Inventory who subsequently received physical examinations by a pediatrician in the study, only 1 condition was found not previously known to the family and recorded by the student in the Inventory. The use of the Health Inventory as a screening device is being extended in view of the evidence in the Pittsburgh experience of its effectiveness. The Pittsburgh study staff believes that its use can reduce the great deal of time and effort expended by school staff in getting parents of students of this age group and older in coming to school to give the history—efforts which more often than not in their experience are wasted.

More applied research in screening methods should lead to greater efficiency in the identification of children with specific health problems, more effective use of personnel, and making possible greater attention to the essential, but usually weakest component of school health programs—namely, follow-up on recommendations for diagnosis and treatment.

D. Mental and Emotional Health of Children

In many centers of population today, the schools report emotional problems and behavior disorders as the most common health problem.

A number of studies have shown that where children get into serious difficulties, the onset can usually be traced back to early childhood. The basis for healthy personality development is usually established early in childhood in the relationship of the child to his mother and father, affection and discipline in the home, the ability of the child to develop a satisfactory identification with a parent or other hero figure and related factors. The guidance the physician provides in child health supervision places him in a unique position to foster healthy physical and emotional growth and development and prevent serious emotional disturbances. Teachers have the opportunity of observing those pupils who are excessively aggressive, or withdrawn or dependent or who give other indications of emotional problems. Much of the potentiality for preventing delinquency and emotional illness in adolescence and adulthood lies in our ability to provide adequate health supervision in infancy and childhood and early diagnosis and treatment for children who show evidence of emotional disorders. Our resources for such treatment have simply not been able to keep up with the need. Typical is the following study reported by the District of Columbia Department of Public Health:

Of a group of 126 children who were evaluated at the School Health Services' Psychiatric, Diagnostic, and Counseling Clinic (staffed by a part-time psychiatrist and a full-time clinical social worker), psychiatric therapy was recommended for 60 percent, and referral to a social agency for another 20 percent. These recommendations could be carried out for less than 10 percent of the children because of limited resources in the community. The school records repeatedly report the same problems in the same children year after year. A study was made of 60 children's case records in this group to ascertain whether in those cases of early onset of the problem, prevention was possible. For the group of 60 cases, the time of onset was in the preschool period in 32, in kindergarten in 20, the first grade in 5, and the second grade in 3. In 58 of the 60 children 5-17 years of age, the problem had been noted in the preschool, kindergarten, or first grade period. This situation is typical rather than unusual and indicates how our efforts to cope with the emotional problems of children fail to keep up with the need. In adolescence these problems become accentuated and we then must try to compensate for our inability to serve these children earlier in their childhood. For this and other reasons we must devote more attention to health services in secondary schools and to achieving a better understanding of adolescents and the ways in which changing society creates problems for them.

At the January 1963 Conference on School Health Programs in Large Cities, the mental and emotional health of children and youth was listed among “Points That Need Emphasis.” At the meeting one person after another spoke of the strain of mental and emotional problems on school health services.

The most pressing need expressed was for resources for referral and help. Where child guidance or juvenile psychiatric clinics exist, there are long waiting lists and often no provision for an interim evaluation for “plan and disposition.” The schools are left in a frightened and vulnerable state when confronted with disturbed children, understandably fearful lest whatever course they take in the absence of clinic counsel may be against the interests of both the child and the school. The most pressing situation seems to be lack of medical care resources in sufficient quantity to cope with need, and perhaps lack of maximal community planning to make maximal use of those resources that exist.

E. Follow-up on Recommendations for Diagnosis and Treatment

There is little to be gained from the school health staff’s carrying out continuous case-finding of school children with adverse health conditions over a period of years unless the community has the resources to assist the children and their families once the adverse health condition has been found and the families are motivated to carry out the recommendations.

It has long been known that follow-up is a problem. In one study only 34 percent of the children found to have dental caries and sent home with a referral card had actually visited a dentist. In another study in Pennsylvania only 36 percent of the children found to have a remedial physical defect on their annual school physical examination had correction or treatment by the next examination a year later. There even seems to be a question as to whether having parents present during an examination helps improve the follow-through. In the Astoria study, Nyswander made an effort to have parents attend the physical examination and then compared the follow-through with the

follow-through examinations in which no parents were in attendance. Although the results were slightly better when parents were present, the difference was not statistically significant. Why was there little follow-through? Because of lack of understanding or communication? Few of the resistant parents in a recent study failed to understand the recommendations but were reacting with fear, anxiety, hostility, or guilt to them or to the manner in which they were made. If this proves to be the case in general, the problem is going to be difficult to solve, and more study in this area is needed.

Many families need assistance from public health nurses and social workers to help them find and use medical care which has been recommended for their children. However, in many situations needed care is not available because of inadequate medical resources for care, or there may be no way to pay for the service required. For example:

In Washington, D.C., 1,190 school children were on the waiting list at the Gales Eye Clinic on February 18, 1963, who were trying to carry through a semester of their education with impaired eyesight.

Many school health authorities feel that follow-through on recommendations made after a physical examination is better when parents are present at the time of the examination. This practice may become meaningless, however, if it is not supported by allowing the physician sufficient time to examine the child and to explain his findings to the parents and by giving him a staff of social workers and nurses prepared to assist families in carrying out prescribed treatment. Parents who work have no way of leaving younger children at home, or those who can leave them do no more than secure the bare essentials for family maintenance and may not make an effort to attend the examination because they can see no way of caring for conditions that may be found or because they do not appreciate that it is important.


Many low income families are denied admission to community clinics because they are regularly employed and/or have a mortgage, which means they cannot be classified as medically indigent. Actually, many of these families are experiencing financial hardships and cannot afford private care. As a result, they are being forced to neglect medical defects in their children.16

In a recent study of follow-up attention given school children suspected of having hearing impairments in the Denver public schools only “124 out of a total of 419 children” (29%) referred for medical care actually obtained treatment.17

As a first step [in a research project in Pittsburgh, Pa.] 101 seventh-grade boys and girls were thoroughly examined by [a] . . . pediatrician. The pediatrician listed the conditions found and separated them into clinically significant or not significant—needing or not needing referral for care . . . All but two medical conditions found by physical examination were already known to the families and to the school.

Nevertheless, only 43 percent of conditions in need of medical attention were under medical care.18

It has been shown repeatedly that the significant factors in the parents’ carrying out the recommendations of the school are the financial status of the family, the availability of community resources, and the level of education of the parents. How such community resources are organized and made available to the public is also of significance. For example: In Washington County, Md., the program is a joint responsibility of the Department of Education and the Department of Health and is regarded as an integral part of the county’s organized health service. This has enabled the county to develop a program in which there is a continuity from preschool health services to services in the school and to several specialized public health programs. The fact that the Washington County health department has a well-organized hearing conservation program undoubtedly accounts for the fact that recommendations for follow-up care of 490 children with ear, nose, and throat problems were carried out for 92 percent of the children referred. Of 293 referrals for tonsilleotomy and adenoidectomy, 195 were carried out by the conservation-of-hearing program and by private physicians. High rates of successful referrals were achieved with other children as well.

Thus, it is possible to achieve considerable success in follow-up care if this is regarded as sufficiently important to expend time and money to do it, in a program which is closely coordinated with other community agencies.

At the same time it should be emphasized that in many programs certain administrative procedures are themselves contributory to poor results in follow-up of referrals. Most school health services identify defects and recommend follow-up action. However, included in the statistics of defects are many which are of no significance or are not correctable. It should be much more profitable to concentrate on the significant problems and to get something done about them and not waste time on repeatedly identifying, recording, and pursuing defects of no consequence. This would actually require a major change in the approach now taken by most programs.

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V. TRENDS IN THE PROVISION OF MEDICAL CARE FOR CHILDREN

A. Health Agencies

The tremendous increase in the child population is straining the Nation's resources for providing essential health services. Between 1950-60, the increase in the child population was almost twice that of the total population. This is the picture for the Nation as a whole, but it is intensified in certain geographical locations. There is an extra high proportion of children in the larger cities where middle-class families have moved out and low-income families with numerous children have moved in or remained.

The high proportion of children in the younger age group constitutes a special impact on health services, for they are of an age which experiences a high concentration of the incidence of episodes of acute illness.

The period since the end of the war has seen major shifts in population, with large numbers of people moving from rural areas to industrial cities. The huge increase in housing in suburban areas has resulted chiefly from the movement of middle-class families from the cities. The resident population now in our cities is made up increasingly of low-income families with larger proportions of nonwhite than at any previous time.

These changes and their significance for hospitals and health and welfare agencies are illustrated by the following:

INDICES OF POPULATION CHANGES IN BALTIMORE

<table>
<thead>
<tr>
<th>Index</th>
<th>Percent change, 1950-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public assistance clients</td>
<td>+39</td>
</tr>
<tr>
<td>Population total</td>
<td>−1.1</td>
</tr>
<tr>
<td>Live births</td>
<td>+8.8</td>
</tr>
<tr>
<td>White</td>
<td>−15</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>+56</td>
</tr>
<tr>
<td>Out-of-wedlock births</td>
<td>+41</td>
</tr>
<tr>
<td>Well-baby clinics: Infants registered</td>
<td>+59</td>
</tr>
<tr>
<td>Prenatal clinics: Women registered</td>
<td>+133</td>
</tr>
<tr>
<td>Infant mortality rate</td>
<td>+19</td>
</tr>
</tbody>
</table>

Other cities are having similar experiences.

During the past decade, the number of people residing in the District of Columbia has remained virtually the same, but the proportion of low-income families in the city has increased. From data on birth certificates, it has been reported that only 40 percent of the births to women residents in the District of Columbia are attended by physicians as private patients. Among nonwhite maternity patients, who now account for over two-thirds of the births in

—

Washington, less than 25 percent were private patients.\textsuperscript{20}

In Milwaukee, approximately one-third of the babies in that city attend the health department’s well-baby clinics, i.e. clinics which provide health supervision for presumably well infants and children, but do not provide medical care.

In New York City, 30 percent of all infants receive their health supervision at the health department’s well-baby clinics; in one district, it is over 80 percent.\textsuperscript{21}

About one-third of Chicago’s babies in 1961 were born in the low-income census tracts of the city.\textsuperscript{22}

In seeking medical care, these low-income families are straining the resources of the communities in which they live. For the most part, they receive outpatient and hospital care in the tax-supported hospitals as the voluntary hospitals increasingly require payment by or in behalf of each patient admitted. The result has been a great overcrowding of many of the tax-supported hospitals, which together with understaffing is leading to conditions which are incompatible with a decent quality of care.

A study of the Cook County Welfare Department, done by Greenleigh Associates of New York, revealed that the Michael Reese Hospital periodically closes clinic intake because of the excessive caseload. The Cook County Hospital cannot do this and consequently patients may have to wait all day to be seen and sometimes have to return the next day. Despite the greatly increased needs for services by the changing population, in Chicago the number of health department well-baby clinics has decreased from 98 in 1945 to 49 in 1960. A 26 percent decrease also took place in well-baby clinics sponsored by the Infant Welfare Society.\textsuperscript{23}

Similarly, the great crowding of hospital clinics in New York City recently led the health department into a new role in the provision of medical care. On November 15, 1962,\textsuperscript{24} Mayor Wagner announced the opening of a pediatric treatment clinic at the Bedford Stuyvesant Health Center in Brooklyn, “in order to relieve long lines of mothers waiting with their children” for care at the overcrowded hospitals in the area. The clinic is open daily from 8 a.m. to 8 p.m. for children with acute illnesses and injuries, including fractures. By July 1963, the clinic had provided care for 13,614 children.\textsuperscript{25}

\section*{B. Outpatient Care}

Along with the increase in the proportion of the population in the larger cities who are dependent upon community clinics for health services, there has been a generalized shift toward an increase in outpatient care. Many childhood illnesses which formerly required hospitalization can now be handled on an outpatient basis.

Helen M. Wallace, in \textit{Health Services for Mothers and Children},\textsuperscript{26} says:

\begin{quote}
One of the major changes has been the lessening demand for inpatient hospital care of children with certain diagnoses, such as children with acute infections, rheumatic fever, and rheumatic heart disease, tuberculosis, and certain orthopedic disabilities such as rickets, tuberculosis of bone and joint, osteomyelitis, and poliomyelitis. These changes are due to the development of more effective methods of prevention and treatment. One other factor playing a role in the lessening demand for inpatient beds for children has been the recognition of the possible undesirable effects of unnecessary hospitalization or of overhospitalization of children and the steps taken to prevent them from occurring . . .
\end{quote}

At the same time, there has been a concomitant increase in the need for outpatient hospital facilities for children and, related to this, concern regarding the quality of outpatient care. Outpatient departments of hospitals are playing a greater role in the provision of diagnostic care.

\begin{flushright}


\textsuperscript{23} Report from Board of Health, City of Chicago, 1961.


\textsuperscript{25} New York Times, October 31, 1962.

\end{flushright}

Provided by the Maternal and Child Health Library, Georgetown University
and treatment services for children, particularly since the concept of the role of the hospital in the community has been broadened and since efforts have been and are being made to prevent unnecessary or overhospitalization. Furthermore, as new knowledge is being developed in the care of certain types of children (those with hearing impairment, epilepsy, etc.) new services are being developed for them on a predominantly outpatient basis.

For such reasons as these, even though the population of the major cities has not generally increased in the past decade, the demands on hospital outpatient departments and various public clinics have grown enormously.

Current information from hospitals in various parts of the country indicate that practically all of those reporting are experiencing increased strains on available resources.

Odoroff and Abbe reporting on a household survey of use of general hospitals, have reported on Factors in Outpatient Visits. They found that “The most significant contrasts in level of outpatient use appear for variations in income levels. Families with incomes below $2,000 are reported as making about 200 outpatient visits annually per 1,000 population, while those with incomes between $5,000 and $10,000 report about one-half of this rate.”

Perhaps the biggest change of all in hospital utilization and especially in pediatric use has been what might be called “the emergence of the emergency clinic.”

Traditionally, most hospitals have had an “accident room” or an “emergency clinic” and it has functioned as a receiving ward for the accidentally injured, or for the suddenly ill patient. This is no longer the functional pattern of today’s emergency clinic.

Today, the traditional functions go on, but they are often in the midst of a quite different operation, an operation which might more aptly be termed a “dispensary” or “ambulatory” clinic, somewhat similar to the walk-in office visits of a practicing physician.

Shortliffe, Hamilton and Noroian found an average increase of 400 percent in emergency room visits in the 15-year period 1940-55 in 90 U.S. hospitals. Others reported similar findings. Since that time the rise in use has continued and has engendered pediatric concern.

Bertram S. Brown, regarding the emergency room in Grace-New Haven Hospital, New Haven, Conn., has reported an analysis of the emergency room use at Grace-New Haven Hospital. His findings and conclusions include:

- 43% of the families studied used this facility as their only source of medical care.
- 47% of the emergency room patients were Negro, though Negroes represent only 5.8% of the New Haven population. (This was believed due to definite barriers which the Negro population were experiencing in obtaining private medical care.)
- 59% of the patients were under 3 years of age.
- Only 20% were considered seriously ill or “medical emergencies.”
- 65% had respiratory infections.
- The patients seen in the daytime were as ill as those seen between midnight and 8 a.m.
- 91.5% of the patients were sent home and only 8.5% were admitted to the hospital.

For the pediatric service of Grace-New Haven Hospital, 25 percent of the total admissions from all sources come from the emergency room.

... For the pediatric emergency room group, almost half have chosen the hospital as their “family physician.” Yet the emergency room is clearly set up at present to give care to isolated cases and acute situations. The majority of cases seen in

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Brown, Bertram S., M.D.: Regarding the Emergency Room. (Correspondence.) New England Journal of Medicine, 1958, 258, 507-508 (March).
our study needed care of a more comprehensive, continuous nature. It seems clear that our medical leaders and hospital administrators must make plans to give appropriate medical care in accordance with new and changing community needs.

Shortliffe, Hamilton, and Noroian concluded the report of their study saying:

The study reflects an apparent change in thinking upon the part of physicians and public and suggests that physicians and hospitals should plan for the future by increasing emergency room facilities. It is believed that this trend is dictated by the public. Plans should also be made for modernization of staffing patterns in emergency rooms. As load and complexity increase it is increasingly important that these areas be staffed with professional personnel of adequate training and mature judgment.

Examples of conditions in outpatient clinics are represented in the following quotations from reports received:

DALLAS, TEX.*

... The inadequacy of outpatient services is deplorable . . .

Only hospital in the county with clinic facilities for low income or indigent families . . .

Overcrowded—staff working at maximum capacity . . .

Patients not seen at night—sent to nearby hospital.

... A baby died in father's arms while waiting 1 1/2 hours at a nearby emergency hospital without being seen by a physician.

*Dallas County Youth Study 1963. W. M. Schmidt, M.D.

PHILADELPHIA, PA.*

When new, greatly expanded outpatient facilities opened in 1960, "... facilities began to meet patient needs" (a 340% increase over 4-year period in outpatient services for children).

*Philadelphia General's Pediatric Clinics Hospital Topics 39, No. 3, pp. 71-75.

BIRMINGHAM, ALA.*

Has enormously expanding demands but artificially holds caseload level. They report . . .

... many turned away from the outpatient clinic (40 or more a day) due to lack of funds . . . We are holding the line (on quality care) and cannot accept additional patients . . . $800,000 loss yearly on outpatient clinic services . . . no financial support from municipality . . . many are turned away from outpatient service only to return to emergency room at night . . . a mother returned with her dead baby in a sack . . . There is a newspaper crusade to bring about improvement.


C. Hospitalization of Children

1. Rates of hospitalization

Just as the rate of hospitalization is increasing for the population as a whole, there is an upward trend in the rate of hospitalization of children. The American Hospital Association reports that admissions to non-Federal, short-term general, and special hospitals for all ages has increased from 97.5 per 1,000 population in 1946 to 127.6 per 1,000 population in 1960. Similarly, the study by the American Academy of Pediatrics on Child Health Services had found that for the years 1945-46, the number of child admissions to general hospitals was 51.4 per 1,000 children during 1 year, whereas the National Health Survey reports for the period July 1958 through June 1960 an average annual rate for children under 15 of 62.9 discharges per 1,000 children.

The National Health Survey reports that children under 5 years of age were hospitalized more frequently and for longer periods of time than children in the age group 5-14. The number of hospital discharges per 1,000 children for all children under 15 was 62.9. The number of discharges per 1,000 children in the age group under 5 was 77.5; the comparable figure for the 5-14 group was 54.6.

The average length of hospital stay for all children under 15 discharged from short-stay
hospitals was 6.0 days. For children in the age group 0–4 the average length of stay was 7.6 days, but for children in the 5–14 age group it was 4.7 days.

Approximately one-third, 34.3 percent, of the children in the age group 5–14 stayed in the hospital just 1 day, compared with only 18.0 percent of the children in the younger group. This is probably accounted for by the large number of tonsillectomies and/or adenoidectomies performed on children in the 5–14 age group.

Most of the hospital data are in terms of hospital discharges, but special tabulations were done for the year ending June 1960 on the basis of hospital episodes; unlike data for hospital discharges, these included persons still in the hospital sometime during the week of interview. It was found that 9 out of 10 children hospitalized in that year went to the hospital only once during the year and for a relatively brief stay. Of the total number of children hospitalized under 15, 90.3 percent had only one episode in that year.

Of the children who went to the hospital only once during the year, the younger age group stayed longer. Thirteen percent of the group stayed more than 15 days, compared with 5.1 percent of the 5–14 group.

2. Hospitalization and race

Race is an important factor in the hospitalization of children. Nonwhite children go to hospitals less frequently than do white children, but when they do go, they stay much longer. The rate of hospital discharges per 1,000 children under 15 was 41.3 for nonwhite children compared with 66.3 for white children. For white children in the age group 0–4 the hospitalization rate was 79.9 per 1,000 children, compared with 63.1 per 1,000 nonwhite children. The difference between the white and nonwhite children was most noticeable in the age group 5–14, the rate for white children, 58.7 per 1,000 children, being more than twice that for nonwhite children, 28.1 per 1,000.

The average length of hospital stay for nonwhite children under 15 was 9.8 days, whereas for white children it was 5.6 days. The marked difference in length of hospital stay between the white and nonwhite groups was true for both children in the age group 0–4 and those in the 5–14 age group. Nonwhite girls had particularly long hospital stays as compared with white girls—nonwhite girls in the age group 0–4 averaged 12.4 days compared with an average hospital stay of 7.5 days for white girls.

3. Hospitalization and income

The rate of hospital utilization for children under 15 increased as family income increased. Hospital discharges for children coming from families whose income was under $2,000 were at the rate of 42.4 per 1,000 whereas children from families with incomes of $7,000 and over were hospitalized at the rate of 67.7 per 1,000.

The average length of hospital stay for all children under 15 was 6.0 days. For children whose family income was under $2,000 the average hospital stay was 9.3 days contrasted with 4.8 days for children coming from families with an income of $7,000 and over.

4. Hospitalization and residence

The rate of hospitalization was much lower for children living on rural farms than for children who had either urban or rural nonfarm residences. Hospital discharges for children living on rural farms were at the rate of 48.8 per 1,000 population contrasted with 62.6 per 1,000 population for urban children and 68.9 for those having rural nonfarm residences.

5. Conditions for which hospitalized

More than 4 out of 10 children who went to the hospital were hospitalized because of a respiratory condition. However, respiratory conditions accounted for only 2 out of 10, 21.8 percent, of the days spent in hospitals by children under 15. Because of the large number of tonsillectomies and/or adenoidectomies in this group, the average length of stay for these conditions was only 3.1 days.

The large number of childhood injuries was reflected in the number of children hospitalized because of fractures, dislocations, and

Provided by the Maternal and Child Health Library, Georgetown University
other current injuries. These conditions accounted for 12.4 percent of the patients and 15.3 percent of all the days spent in hospitals by children under 15.

Somewhat over half of the children under 15 who went to the hospital were treated surgically for the condition for which they were hospitalized.

Of the conditions that were surgically treated, for all children under 15 the largest group was the "upper respiratory," almost half, 47.1 percent, of all conditions surgically treated falling in this group. This is the group in which the tonsillectomies were classified.

An estimated number of 1,875,000 surgical operations per year were performed on children under 15. This number is larger than the number of children who were surgically treated for the condition for which hospitalized, since in some cases more than one operation was performed during a hospital stay. Also, sometimes an operation was performed for a condition other than the one for which the patient was hospitalized. An analysis of the types of operations indicates that nearly half, 45.4 percent, of all the operations were tonsillectomies and/or adenoidectomies, a total of 851,000 operations.

Of the other types of operations, only appendectomies, 6.3 percent, repair of hernias, 7.8 percent, and reduction of fractures and dislocations, 6.6 percent, of the total number of operations on children under 15, were of numerical significance.

D. Hospital Insurance

Some fraction of the hospital bill was paid for by insurance for 72.1 percent of the hospital discharges of all children under 15.

As the length of hospital stay increased, the proportion for which some fraction of the hospital bill was paid for by insurance declined. Thus, if the hospital stay was only 1 day, for 76.8 percent of the discharges some part of the hospital bill was paid, but if the hospital stay was 31 or more days, for only 42.3 percent of the discharges was some fraction of the hospital bill paid. The decrease in the proportion paid for by insurance occurred for both the younger and older age groups. However, for every interval of hospital stay the proportion for which some part of the hospital bill was paid was higher for the 5-14 age group than for the 0-4 age group.

The proportion for which any part of the bill was paid for by insurance was considerably lower for nonwhite children, 40.8 percent, than for white children, 75.2 percent.

The proportion for which any part of the bill was paid for by insurance was much lower for children from low-income families than for children from higher-income families. The proportion was lowest for children whose families were in the income group under $2,000, 32.9 percent, and was highest for the income groups $4,000-$6,999, 81.1 percent, and $7,000 and over, 80.4 percent.

E. State Crippled Children’s Programs

The State crippled children’s programs in most States provide the principal organized community resource for the location, diagnosis, and treatment of children with crippling conditions. Since 1936 there has been extensive growth of this program in every State not only in numbers of children receiving services but in greatly increasing the scope and variety of handicapping conditions which are included.

Last year 375,000 children received medical services under this program, a national rate of 49 per 10,000 children under 21 years and twice the rate of 1937. However, differences in the rate of service among the States is considerable, the highest being 124 per 10,000, the lowest 15. This unevenness is an indication of the potentiality and need for considerable growth of these programs in many States. The one-third of the States with the lowest per capita income have the highest rate of services, including virtually all the Southern States. This is a reflection of the recognition of need, the availability of fewer other resources than the richer States and the response to the need by the State agencies.

The trend in all States is to include a wide variety of crippling conditions. Although initially predominantly orthopedic, these handicaps now constitute less than one-half of the case load. While overall progress is gratifying, our statistics show where much extension and improvement is needed. Many crippled children or children with potentially crippling
conditions are not receiving needed care because these conditions may not be included in the State's programs. For example, in 31 States, the program did not include children with epilepsy or served fewer than 25 such children. In 37 States the programs did not include children with strabismus, the neglect of which often results in loss of vision in the affected eye; in 29 States the program did not include children with hearing impairments. The major reason for these deficiencies is inadequate funds.

In chart 1 State services rates are arrayed from high to low for comparison with national average. Taken as "optimum" is the approximate service level in Maryland, 120 per 10,000, the rate which ranked at the 95th percentile among all State rates in 1959. The gaps between actual State service rates in 1959, and the "optimum" service level indicate a high degree of unevenness in the benefits to crippled children in different States. (See chart 1.) If services were available in all States at the optimum 1959 service level (120 per 10,000), many more crippled children could receive the services of these programs. It is assumed here that, in the several States, prevalence rates for crippling conditions in childhood are similar, and the proportion of families in need of help in providing the specialized, long term, and often costly care to overcome these conditions, are broadly comparable in the different States. Under these assumptions, the present inequality of State service rates suggests that some 483,000 crippled children in addition to the 375,000 now receiving services could be benefited if States having below optimum service rates enlarged their programs to the optimum level. The total number of crippled children receiving physicians' services would be increased about 143 percent to over 800,000 children. For 15 States the relative increase in number served would range from 200 to 700 percent (Connecticut, South Carolina, Nebraska, Rhode Island, New Jersey, Pennsylvania, Missouri, Illinois, Wisconsin, Michigan, Massachusetts, Washington, Ohio, Texas, and Indiana). Estimates for each State of the additional numbers of crippled children who would receive services, if the optimum rate prevailed, are shown in chart 2 in comparison with the numbers actually served in 1959.

Some indications of the numbers of children with diagnostic conditions who are without benefit of crippled children's services can be seen in chart 3, which gives for each of the diagnostic groups a comparison of the number served in 1959, with the expected number, if the optimum service rate for the specified diagnostic group prevails nationally. (See also chart 2.) The State service rate, for the particular diagnostic group, ranking at the 95th or higher percentile among States in 1959 was taken as the optimum service level for that group.

In the case of epilepsy, about 40,000 children (over six times the number served in 1959) would receive care if all the States were providing services at optimum level for this condition. (See chart 3.) Expansion of services for conditions in certain other diagnostic groups to their respective optimum rate levels would benefit other groups of children as follows: the number of children with strabismus who would receive physician's services would be increased from 10,709 to about 68,800; with diseases of the ear and mastoid process, from 20,540 to some 192,000; with congenital heart and other malformations of the circulatory system, from 14,450 to over 59,500. As a group children receiving services for different types of congenital malformations would increase in number from 61,367 to over 230,000.

The levels of services, for the several diagnostic groupings, which were termed "optimum" for purposes of the present estimates, ranked high in the range of 1959 State service rates for these diagnoses. They are accordingly helpful in defining immediate goals. It is noteworthy that under programs expanded to reach these levels in all States, the proportion of all children handicapped by certain conditions who would then receive physicians' services under the crippled children's program would still be relatively small. For example, if the 1959 optimum service rate for children with epilepsy prevailed today, about 11 percent of all children with this handicap in the United States would receive services.
States would be receiving services. In the case of eye conditions needing specialist care, services expanded to present optimum rate would benefit about 1 out of 100 children of school age in need of this care. Expansion of services to the 1959 optimum rate for children with cleft palate and/or harelip would provide service for possibly one-third of the children having this diagnosis. These considerations suggest that from a long-range viewpoint there is room for States to progress even beyond the 1959 optimum State service rates in providing more adequate service for crippled children. The present estimates based on optimum State rates of 1959 are probably conservative in respect to goals for a half decade or more in the future.
CHILDREN WHO RECEIVED PHYSICIAN'S SERVICES, 1959
FEDERALLY AIDED-STATE PROGRAMS OF SERVICES FOR CRIPPLED CHILDREN
TITLE V, PART 2, SOCIAL SECURITY ACT AS AMENDED

Number of children served per 10,000 children under 21

- Virgin Islands
- Dist. of Columbia
- Vermont
- Alaska
- Maryland
- California
- Nevada
- Delaware
- Wyoming
- Utah
- Oklahoma
- North Carolina
- Alabama
- Maine
- New Mexico
- South Dakota
- Puerto Rico
- Hawaii
- Tennessee
- Iowa
- Arkansas
- Virginia
- Louisiana
- Montana
- Colorado
- New Hampshire
- North Dakota
- Florida
- Kentucky
- Georgia
- Kansas
- New York
- Mississippi
- West Virginia
- Idaho
- Oregon
- Minnesota
- Connecticut
- Nebraska
- South Carolina
- Rhode Island
- New Jersey
- Pennsylvania
- Missouri
- Illinois
- Wisconsin
- Michigan
- Massachusetts
- Washington
- Ohio
- Texas
- Indiana
- Guam

**UNITED STATES**

*Virgin Islands, 743; District of Columbia, 325; Vermont, 175; Alaska, 167.

**Not participating in crippled children's program.**

Provided by the Maternal and Child Health Library, Georgetown University
NUMBER OF CRIPPLED CHILDREN WHO RECEIVED PHYSICIAN'S SERVICES, 1959
COMPARSED WITH ESTIMATED NUMBER IF STATE PROGRAMS WERE
PROVIDING SERVICES AT OPTIMUM RATE*

*120 children receiving physician services per 10,000 children under 21;
approximate 95th percentile rate in Maryland, 1959, disregarding District of Columbia, Puerto Rico, Virgin Islands, and Guam.

**Arizona was not participating, 1959. In Alaska, District of Columbia, Vermont, and Virgin Islands, number of children served in 1959 exceeded estimated number.

Provided by the Maternal and Child Health Library, Georgetown University
NUMBER OF CHILDREN WHO RECEIVED PHYSICIAN'S SERVICES FOR CERTAIN DIAGNOSES, 1959
COMPAORED WITH ESTIMATED NUMBER IF STATE PROGRAMS WERE PROVIDING THESE SERVICES AT OPTIMUM RATES

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of children under 21 in thousands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diseases of Ear and Mastoid Process</td>
<td></td>
</tr>
<tr>
<td>Deafness and impairment of hearing</td>
<td></td>
</tr>
<tr>
<td>Other diseases of ear, etc.</td>
<td></td>
</tr>
<tr>
<td>Congenital Malformations</td>
<td></td>
</tr>
<tr>
<td>Clubfoot</td>
<td></td>
</tr>
<tr>
<td>Circulatory system</td>
<td></td>
</tr>
<tr>
<td>Cleft palate and/or harelip</td>
<td></td>
</tr>
<tr>
<td>Congenital dislocation of hip</td>
<td></td>
</tr>
<tr>
<td>Spina bifida and meningocoele</td>
<td></td>
</tr>
<tr>
<td>Congenital cataract</td>
<td></td>
</tr>
<tr>
<td>Diseases of the Eye</td>
<td></td>
</tr>
<tr>
<td>Strabismus</td>
<td></td>
</tr>
<tr>
<td>Other diseases of the eye, except cataract and refractive errors</td>
<td></td>
</tr>
<tr>
<td>Epilepsy</td>
<td></td>
</tr>
<tr>
<td>All Other Diagnoses</td>
<td></td>
</tr>
</tbody>
</table>

*Estimated number at optimum service rate* for specified diagnosis.

Number receiving physician's services, 1959